

SEQUENCE LISTING

<110> Allaway, Graham P.  
Wild, Carl T.  
Salzwedel, Karl

<120> Method for Detecting Viral Inactivating Agents

<130> 1900.0380001

<150> US 60/418,341

<151> 2002-10-16

<160> 78

<170> PatentIn version 3.2

<210> 1

<211> 55

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 1

Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu  
1 5 10 15

Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly  
20 25 30

Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys  
35 40 45

Asp Gln Gln Leu Leu Gly Ile  
50 55

<210> 2

<211> 38

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 2

Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu  
20 25 30

Arg Tyr Leu Lys Asp Gln  
35

<210> 3

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 3

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Ile Leu  
35

<210> 4

<211> 56

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 4

Trp Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr  
1 5 10 15

Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu  
20 25 30

Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp  
35 40 45

Asn Trp Phe Asn Ile Thr Asn Trp  
50 55

<210> 5

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 5

Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln  
1 5 10 15

Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu  
20 25 30

Trp Asn Trp Phe  
35

<210> 6

<211> 34

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 6

Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His  
1 5 10 15

Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu  
20 25 30

Leu Leu

<210> 7

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial linker peptide

<220>

<221> MISC\_FEATURE

<222> (1)..(5)

<223> Sequence may be repeated 1 to 5 times

<400> 7

Gly Gly Gly Gly Ser  
1 5

<210> 8

<211> 345

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 8

Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly  
1 5 10 15

Ser Thr Met Gly Ala Arg Ser Met Thr Leu Thr Val Gln Ala Arg Gln  
20 25 30

Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile  
35 40 45

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln  
50 55 60

Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln  
65 70 75 80

Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala

|            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|            |            |            |            | 85         |            |            |            | 90         |            |            |            | 95         |            |            |            |
| Val        | Pro        | Trp        | Asn<br>100 | Ala        | Ser        | Trp        | Ser        | Asn<br>105 | Lys        | Ser        | Leu        | Glu        | Gln<br>110 | Ile        | Trp        |
| Asn        | Asn        | Met<br>115 | Thr        | Trp        | Met        | Glu        | Trp<br>120 | Asp        | Arg        | Glu        | Ile        | Asn<br>125 | Asn        | Tyr        | Thr        |
| Ser        | Leu<br>130 | Ile        | His        | Ser        | Leu        | Ile<br>135 | Glu        | Glu        | Ser        | Gln        | Asn<br>140 | Gln        | Gln        | Glu        | Lys        |
| Asn<br>145 | Glu        | Gln        | Glu        | Leu        | Leu<br>150 | Glu        | Leu        | Asp        | Lys        | Trp<br>155 | Ala        | Ser        | Leu        | Trp        | Asn<br>160 |
| Trp        | Phe        | Asn        | Ile        | Thr<br>165 | Asn        | Trp        | Leu        | Trp        | Tyr<br>170 | Ile        | Lys        | Ile        | Phe        | Ile<br>175 | Met        |
| Ile        | Val        | Gly        | Gly<br>180 | Leu        | Val        | Gly        | Leu        | Arg<br>185 | Ile        | Val        | Phe        | Ala        | Val<br>190 | Leu        | Ser        |
| Ile        | Val        | Asn<br>195 | Arg        | Val        | Arg        | Gln        | Gly<br>200 | Tyr        | Ser        | Pro        | Leu        | Ser<br>205 | Phe        | Gln        | Thr        |
| His        | Leu<br>210 | Pro        | Thr        | Pro        | Arg        | Gly<br>215 | Pro        | Asp        | Arg        | Pro        | Glu<br>220 | Gly        | Ile        | Glu        | Glu        |
| Glu<br>225 | Gly        | Gly        | Glu        | Arg        | Asp<br>230 | Arg        | Asp        | Arg        | Ser        | Ile<br>235 | Arg        | Leu        | Val        | Asn        | Gly<br>240 |
| Ser        | Leu        | Ala        | Leu        | Ile<br>245 | Trp        | Asp        | Asp        | Leu        | Arg<br>250 | Ser        | Leu        | Cys        | Leu        | Phe<br>255 | Ser        |
| Tyr        | His        | Arg        | Leu<br>260 | Arg        | Asp        | Leu        | Leu        | Leu<br>265 | Ile        | Val        | Thr        | Arg        | Ile<br>270 | Val        | Glu        |
| Leu        | Leu        | Gly<br>275 | Arg        | Arg        | Gly        | Trp        | Glu<br>280 | Ala        | Leu        | Lys        | Tyr        | Trp<br>285 | Trp        | Asn        | Leu        |
| Leu        | Gln<br>290 | Tyr        | Trp        | Ser        | Gln        | Glu<br>295 | Leu        | Lys        | Asn        | Ser        | Ala<br>300 | Val        | Ser        | Leu        | Leu        |
| Asn<br>305 | Ala        | Thr        | Ala        | Ile        | Ala<br>310 | Val        | Ala        | Glu        | Gly        | Thr<br>315 | Asp        | Arg        | Val        | Ile        | Glu<br>320 |
| Val        | Val        | Gln        | Gly        | Ala<br>325 | Cys        | Arg        | Ala        | Ile        | Arg<br>330 | His        | Ile        | Pro        | Arg        | Arg<br>335 | Ile        |

-5-

Arg Gln Gly Leu Glu Arg Ile Leu Leu  
340 345

<210> 9  
<211> 45  
<212> PRT  
<213> Human Immunodeficiency virus 1  
  
<400> 9

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln  
35 40 45

<210> 10  
<211> 45  
<212> PRT  
<213> Human Immunodeficiency virus 1  
  
<400> 10

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Leu Glu Arg Tyr Leu Arg Asp Gln  
35 40 45

<210> 11  
<211> 36  
<212> PRT  
<213> Human Immunodeficiency virus 1  
  
<400> 11

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

<210> 12

<211> 38  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 12

Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Leu Glu  
20 25 30

Arg Tyr Leu Arg Asp Gln  
35

<210> 13  
<211> 45  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 13

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln Arg Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gly Asp Gln  
35 40 45

<210> 14  
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<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 14

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln Arg Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

<210> 15  
<211> 38  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 15

-7-

Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln Arg Met Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu  
20 25 30

Arg Tyr Leu Gly Asp Gln  
35

<210> 16  
<211> 45  
<212> PRT  
<213> Human Immunodeficiency virus 1  
<400> 16

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Leu Glu Arg Tyr Leu Arg Asp Gln  
35 40 45

<210> 17  
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<212> PRT  
<213> Human Immunodeficiency virus 1  
<400> 17

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

<210> 18  
<211> 38  
<212> PRT  
<213> Human Immunodeficiency virus 1  
<400> 18

Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Met Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Leu Glu

20

25

30

Arg Tyr Leu Arg Asp Gln  
35

<210> 19

<211> 45

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 19

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Ile Glu Arg Tyr Leu Arg Asp Gln  
35 40 45

<210> 20

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 20

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

<210> 21

<211> 38

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 21

Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Met Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Ile Glu  
20 25 30

Arg Tyr Leu Arg Asp Gln  
35

<210> 22  
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 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 22

Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala  
 1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
 20 25 30

Ala Arg Val Leu Ala Val Glu Ser Tyr Leu Lys Asp Gln  
 35 40 45

<210> 23  
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 <212> PRT  
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<400> 23

Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu  
 1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu  
 20 25 30

Ser Tyr Leu Lys Asp Gln  
 35

<210> 24  
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 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 24

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala  
 1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
 20 25 30

Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Gln Asp Gln  
 35 40 45

<210> 25  
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 <213> Human Immunodeficiency virus 1

<400> 25

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

<210> 26

<211> 38

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 26

Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu  
20 25 30

Arg Tyr Leu Gln Asp Gln  
35

<210> 27

<211> 45

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 27

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Leu Glu Arg Tyr Leu Arg Asp Gln  
35 40 45

<210> 28

<211> 38

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 28

Ser Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Leu Glu  
20 25 30

Arg Tyr Leu Arg Asp Gln  
35

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<212> PRT  
<213> Human Immunodeficiency virus 1  
  
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Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Gln Ala  
1 5 10 15

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Val Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln  
35 40 45

<210> 30  
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<213> Human Immunodeficiency virus 1  
  
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Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Arg Ala Ile Gln Ala  
1 5 10 15

Gln Gln His Met Leu Gln Leu Thr Val Trp Gly Val Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

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<212> PRT  
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<400> 31

Ser Asn Leu Leu Arg Ala Ile Gln Ala Gln Gln His Met Leu Gln Leu  
1 5 10 15

Thr Val Trp Gly Val Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu  
20 25 30

Arg Tyr Leu Lys Asp Gln

35

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<213> Human Immunodeficiency virus 1

<400> 32

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Lys Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln  
35 40 45

<210> 33  
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<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 33

Ser Gly Ile Val Gln Gln Gln Ser Asn Leu Leu Lys Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Lys Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Arg Val Leu  
35

<210> 34  
<211> 38  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 34

Ser Asn Leu Leu Lys Ala Ile Glu Ala Gln Gln His Leu Leu Lys Leu  
1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu  
20 25 30

Arg Tyr Leu Lys Asp Gln  
35

<210> 35  
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<212> PRT

<213> Human Immunodeficiency virus 1

<400> 35

Ser Gly Ile Val Gln Gln Gln Asn Ile Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Ser Ile Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Lys Val Leu Ala Ile Glu Arg Tyr Leu Arg Asp Gln  
35 40 45

<210> 36

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 36

Ser Gly Ile Val Gln Gln Gln Asn Ile Leu Leu Arg Ala Ile Glu Ala  
1 5 10 15

Gln Gln His Leu Leu Gln Leu Ser Ile Trp Gly Ile Lys Gln Leu Gln  
20 25 30

Ala Lys Val Leu  
35

<210> 37

<211> 38

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 37

Asn Ile Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu  
1 5 10 15

Ser Ile Trp Gly Ile Lys Gln Leu Gln Ala Lys Val Leu Ala Ile Glu  
20 25 30

Arg Tyr Leu Arg Asp Gln  
35

<210> 38

<211> 45

<212> PRT

<213> Human Immunodeficiency virus 1

<220>

<221> misc\_feature  
<222> (25)..(25)  
<223> Xaa can be any naturally occurring amino acid

<400> 38

Lys Gly Ile Val Gln Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala  
1 5 10 15

Gln Gln Gln Leu Leu Arg Leu Ser Xaa Trp Gly Ile Arg Gln Leu Arg  
20 25 30

Ala Arg Leu Leu Ala Leu Glu Thr Leu Leu Gln Asn Gln  
35 40 45

<210> 39  
<211> 35  
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<213> Human Immunodeficiency virus 1

<220>  
<221> misc\_feature  
<222> (25)..(25)  
<223> Xaa can be any naturally occurring amino acid

<400> 39

Lys Gly Ile Val Gln Gln Gln Asp Asn Leu Leu Arg Ala Ile Gln Ala  
1 5 10 15

Gln Gln Gln Leu Leu Arg Leu Ser Xaa Trp Gly Ile Arg Gln Leu Arg  
20 25 30

Ala Arg Leu  
35

<210> 40  
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<212> PRT  
<213> Human Immunodeficiency virus 1

<220>  
<221> misc\_feature  
<222> (18)..(18)  
<223> Xaa can be any naturally occurring amino acid

<400> 40

Asp Asn Leu Leu Arg Ala Ile Gln Ala Gln Gln Gln Leu Leu Arg Leu  
1 5 10 15

Ser Xaa Trp Gly Ile Arg Gln Leu Arg Ala Arg Leu Leu Ala Leu Glu  
20 25 30

Thr Leu Leu Gln Asn Gln  
35

<210> 41  
<211> 46  
<212> PRT  
<213> Human Immunodeficiency virus 1  
  
<400> 41

Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile His  
1 5 10 15

Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu  
20 25 30

Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe  
35 40 45

<210> 42  
<211> 46  
<212> PRT  
<213> Human Immunodeficiency virus 1  
  
<400> 42

Trp Met Glu Trp Glu Arg Glu Ile Glu Asn Tyr Thr Gly Leu Ile Tyr  
1 5 10 15

Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp  
20 25 30

Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe  
35 40 45

<210> 43  
<211> 34  
<212> PRT  
<213> Human Immunodeficiency virus 1  
  
<400> 43

Trp Met Glu Trp Glu Arg Glu Ile Glu Asn Tyr Thr Gly Leu Ile Tyr  
1 5 10 15

Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp  
20 25 30

Leu Leu

<210> 44  
 <211> 36  
 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 44

Tyr Thr Gly Leu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln  
 1 5 10 15

Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu  
 20 25 30

Trp Asn Trp Phe  
 35

<210> 45  
 <211> 46  
 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 45

Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Glu Ile Tyr  
 1 5 10 15

Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu  
 20 25 30

Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe  
 35 40 45

<210> 46  
 <211> 34  
 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 46

Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Ser Glu Ile Tyr  
 1 5 10 15

Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu  
 20 25 30

Leu Leu

<210> 47  
 <211> 36  
 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 47

Tyr Thr Ser Glu Ile Tyr Thr Leu Ile Glu Glu Ser Gln Asn Gln Gln  
1 5 10 15

Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu  
20 25 30

Trp Asn Trp Phe  
35

<210> 48

<211> 46

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 48

Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Asp Tyr Ile Tyr  
1 5 10 15

Asp Leu Leu Glu Lys Ser Gln Thr Gln Gln Glu Lys Asn Glu Lys Glu  
20 25 30

Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe  
35 40 45

<210> 49

<211> 34

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 49

Trp Met Glu Trp Glu Arg Glu Ile Asp Asn Tyr Thr Asp Tyr Ile Tyr  
1 5 10 15

Asp Leu Leu Glu Lys Ser Gln Thr Gln Gln Glu Lys Asn Glu Lys Glu  
20 25 30

Leu Leu

<210> 50

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 50

Tyr Thr Asp Tyr Ile Tyr Asp Leu Leu Glu Lys Ser Gln Thr Gln Gln  
1 5 10 15

Glu Lys Asn Glu Lys Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu  
20 25 30

Trp Asn Trp Phe  
35

<210> 51  
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<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 51

Trp Ile Gln Trp Asp Arg Glu Ile Ser Asn Tyr Thr Gly Ile Ile Tyr  
1 5 10 15

Arg Leu Leu Glu Glu Ser Gln Asn Gln Gln Glu Asn Asn Glu Lys Asp  
20 25 30

Leu Leu Ala Leu Asp Lys Trp Gln Asn Leu Trp Ser Trp Phe  
35 40 45

<210> 52  
<211> 34  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 52

Trp Ile Gln Trp Asp Arg Glu Ile Ser Asn Tyr Thr Gly Ile Ile Tyr  
1 5 10 15

Arg Leu Leu Glu Glu Ser Gln Asn Gln Gln Glu Asn Asn Glu Lys Asp  
20 25 30

Leu Leu

<210> 53  
<211> 36  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 53

Tyr Thr Gly Ile Ile Tyr Arg Leu Leu Glu Glu Ser Gln Asn Gln Gln  
1 5 10 15

Glu Asn Asn Glu Lys Asp Leu Leu Ala Leu Asp Lys Trp Gln Asn Leu  
20 25 30

Trp Ser Trp Phe

35

<210> 54  
<211> 46  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 54

Trp Met Glu Trp Glu Arg Glu Ile Ser Asn Tyr Thr Gly Leu Ile Tyr  
1 5 10 15

Asp Leu Ile Glu Glu Ser Gln Ile Gln Gln Glu Lys Asn Glu Lys Asp  
20 25 30

Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe  
35 40 45

<210> 55  
<211> 34  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 55

Trp Met Glu Trp Glu Arg Glu Ile Ser Asn Tyr Thr Gly Leu Ile Tyr  
1 5 10 15

Asp Leu Ile Glu Glu Ser Gln Ile Gln Gln Glu Lys Asn Glu Lys Asp  
20 25 30

Leu Leu

<210> 56  
<211> 36  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 56

Tyr Thr Gly Leu Ile Tyr Asp Leu Ile Glu Glu Ser Gln Ile Gln Gln  
1 5 10 15

Glu Lys Asn Glu Lys Asp Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu  
20 25 30

Trp Asn Trp Phe  
35

<210> 57  
<211> 46

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 57

Trp Met Glu Trp Gln Lys Glu Ile Ser Asn Tyr Ser Asn Glu Val Tyr  
1 5 10 15

Arg Leu Ile Glu Lys Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Gly  
20 25 30

Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe  
35 40 45

<210> 58

<211> 34

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 58

Trp Met Glu Trp Gln Lys Glu Ile Ser Asn Tyr Ser Asn Glu Val Tyr  
1 5 10 15

Arg Leu Ile Glu Lys Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Gly  
20 25 30

Leu Leu

<210> 59

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 59

Tyr Ser Asn Glu Val Tyr Arg Leu Ile Glu Lys Ser Gln Asn Gln Gln  
1 5 10 15

Glu Lys Asn Glu Gln Gly Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu  
20 25 30

Trp Asn Trp Phe  
35

<210> 60

<211> 46

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 60

-21-

Trp Ile Gln Trp Asp Arg Glu Ile Ser Asn Tyr Thr Gln Gln Ile Tyr  
1 5 10 15

Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp  
20 25 30

Leu Leu Ala Leu Asp Asn Trp Ala Ser Leu Trp Thr Trp Phe  
35 40 45

<210> 61

<211> 34

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 61

Trp Ile Gln Trp Asp Arg Glu Ile Ser Asn Tyr Thr Gln Gln Ile Tyr  
1 5 10 15

Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Asp  
20 25 30

Leu Leu

<210> 62

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 62

Tyr Thr Gln Gln Ile Tyr Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln  
1 5 10 15

Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Asn Trp Ala Ser Leu  
20 25 30

Trp Thr Trp Phe  
35

<210> 63

<211> 46

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 63

Trp Met Glu Trp Asp Arg Gln Ile Asp Asn Tyr Thr Glu Val Ile Tyr  
1 5 10 15

Arg Leu Leu Glu Leu Ser Gln Thr Gln Gln Glu Gln Asn Glu Gln Asp

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 20  |     | 25  |     | 30  |     |     |     |     |     |     |     |     |
| Leu | Leu | Ala | Leu | Asp | Lys | Trp | Asp | Ser | Leu | Trp | Asn | Trp | Phe |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |

<210> 64  
 <211> 34  
 <212> PRT  
 <213> Human Immunodeficiency virus 1  
 <400> 64

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Met | Glu | Trp | Asp | Arg | Gln | Ile | Asp | Asn | Tyr | Thr | Glu | Val | Ile | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Leu | Leu | Glu | Leu | Ser | Gln | Thr | Gln | Gln | Glu | Gln | Asn | Glu | Gln | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

Leu Leu

<210> 65  
 <211> 36  
 <212> PRT  
 <213> Human Immunodeficiency virus 1  
 <400> 65

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Thr | Glu | Val | Ile | Tyr | Arg | Leu | Leu | Glu | Leu | Ser | Gln | Thr | Gln | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gln | Asn | Glu | Gln | Asp | Leu | Leu | Ala | Leu | Asp | Lys | Trp | Asp | Ser | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |
|-----|-----|-----|-----|
| Trp | Asn | Trp | Phe |
|     |     |     | 35  |

<210> 66  
 <211> 47  
 <212> PRT  
 <213> Human Immunodeficiency virus 1  
 <400> 66

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Ile | Gln | Trp | Glu | Arg | Glu | Ile | Asn | Asn | Tyr | Thr | Gly | Ile | Ile | Tyr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Leu | Ile | Glu | Glu | Ala | Gln | Asn | Gln | Gln | Glu | Asn | Asn | Glu | Lys | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Ala | Leu | Asp | Lys | Trp | Thr | Asn | Leu | Trp | Asn | Trp | Phe | Asn |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |

<210> 67  
<211> 34  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 67

Trp Ile Gln Trp Glu Arg Glu Ile Asn Asn Tyr Thr Gly Ile Ile Tyr  
1 5 10 15

Ser Leu Ile Glu Glu Ala Gln Asn Gln Gln Glu Asn Asn Glu Lys Asp  
20 25 30

Leu Leu

<210> 68  
<211> 37  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 68

Tyr Thr Gly Ile Ile Tyr Ser Leu Ile Glu Glu Ala Gln Asn Gln Gln  
1 5 10 15

Glu Asn Asn Glu Lys Asp Leu Leu Ala Leu Asp Lys Trp Thr Asn Leu  
20 25 30

Trp Asn Trp Phe Asn  
35

<210> 69  
<211> 46  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 69

Trp Gln Gln Trp Asp Glu Lys Val Arg Asn Tyr Ser Gly Val Ile Phe  
1 5 10 15

Gly Leu Ile Glu Gln Ala Gln Glu Gln Gln Asn Thr Asn Glu Lys Ser  
20 25 30

Leu Leu Glu Leu Asp Gln Trp Asp Ser Leu Trp Ser Trp Phe  
35 40 45

<210> 70  
<211> 34  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 70

Trp Gln Gln Trp Asp Glu Lys Val Arg Asn Tyr Ser Gly Val Ile Phe  
1 5 10 15

Gly Leu Ile Glu Gln Ala Gln Glu Gln Gln Asn Thr Asn Glu Lys Ser  
20 25 30

Leu Leu

<210> 71

<211> 36

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 71

Tyr Ser Gly Val Ile Phe Gly Leu Ile Glu Gln Ala Gln Glu Gln Gln  
1 5 10 15

Asn Thr Asn Glu Lys Ser Leu Leu Glu Leu Asp Gln Trp Asp Ser Leu  
20 25 30

Trp Ser Trp Phe  
35

<210> 72

<211> 46

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 72

Trp Gln Glu Trp Asp Arg Gln Ile Ser Asn Ile Ser Ser Thr Ile Tyr  
1 5 10 15

Glu Glu Ile Gln Lys Ala Gln Val Gln Gln Glu Gln Asn Glu Lys Lys  
20 25 30

Leu Leu Glu Leu Asp Glu Trp Ala Ser Ile Trp Asn Trp Leu  
35 40 45

<210> 73

<211> 34

<212> PRT

<213> Human Immunodeficiency virus 1

<400> 73

Trp Gln Glu Trp Asp Arg Gln Ile Ser Asn Ile Ser Ser Thr Ile Tyr  
1 5 10 15

Glu Glu Ile Gln Lys Ala Gln Val Gln Gln Glu Gln Asn Glu Lys Lys  
20 25 30

Leu Leu

<210> 74  
<211> 36  
<212> PRT  
<213> Human Immunodeficiency virus 1

<400> 74

Ile Ser Ser Thr Ile Tyr Glu Glu Ile Gln Lys Ala Gln Val Gln Gln  
1 5 10 15

Glu Gln Asn Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala Ser Ile  
20 25 30

Trp Asn Trp Leu  
35

<210> 75  
<211> 53  
<212> PRT  
<213> Respiratory Syncytial Virus

<400> 75

Gly Glu Pro Ile Ile Asn Phe Tyr Asp Pro Leu Val Phe Pro Ser Asp  
1 5 10 15

Glu Phe Asp Ala Ser Ile Ser Gln Val His Glu Lys Ile Asn Gln Ser  
20 25 30

Leu Ala Phe Ile Arg Lys Ser Asp Glu Leu Leu His Asn Val Asn Ala  
35 40 45

Gly Lys Ser Thr Thr  
50

<210> 76  
<211> 56  
<212> PRT  
<213> Human Parainfluenza Virus Type 3

<400> 76

Tyr Thr Pro Asn Asp Ile Thr Leu Asn Asn Ser Val Ala Leu Asp Pro  
1 5 10 15

Ile Asp Ile Ser Ile Glu Leu Asn Lys Ala Lys Ser Asp Leu Glu Glu

20 25 30  
 Ser Lys Glu Trp Ile Arg Arg Ser Asn Gln Lys Leu Asp Ser Ile Gly  
           35                          40                          45

Asn Trp His Gln Ser Ser Thr Thr  
           50                          55

<210> 77  
 <211> 50  
 <212> PRT  
 <213> Morbillivirus measles virus

<400> 77

Pro Asp Ala Val Tyr Leu His Arg Ile Asp Leu Gly Pro Pro Ile Ser  
 1                          5                          10                          15

Leu Glu Arg Leu Asp Val Gly Thr Asn Leu Asn Ala Ile Ala Lys Leu  
           20                          25                          30

Glu Asp Ala Lys Glu Leu Leu Glu Ser Ser Asp Gln Ile Leu Arg Ser  
           35                          40                          45

Met Lys  
       50

<210> 78  
 <211> 6  
 <212> PRT  
 <213> Human Immunodeficiency virus 1

<400> 78

Glu Leu Asp Lys Trp Ala  
 1                          5